CHAPTER 2

TECHNICAL ADMINISTRATION

LEARNING OBJECTIVES

Upon completing this chapter, you should be able to do the following:

1. Describe the Maintenance Data System and identify its associated forms.
2. Identify the primary technical manuals associated with the routine duties of the Fire Controlman

INTRODUCTION

"Technical administration" is a broad term that defines the methods used to document the completion of job tasks. Whether a task is part of equipment maintenance or repair, it is not fully completed until all documenting paperwork has been completed. You, as the technician, are responsible for ensuring that all paperwork is completed for each task you are assigned.

The technical administration for most of your job tasks is prescribed by the ship's Maintenance and Material Management System (3-M) manual. The 3-M manual (OPNAVINST 4790.4 series) discusses this system in detail. Part of the Maintenance and Material Management System includes the Maintenance Data System (MDS). This chapter discusses MDS and some of the manuals in the technical library that are useful in completing Fire Controlman paperwork.

THE MAINTENANCE DATA SYSTEM

The Maintenance Data System (MDS) enables technicians and their supervisors to record maintenance actions in substantial detail. This provides a variety of retrievable reports concerning maintenance and the performance of the equipment. One of the major objectives of MDS is to provide the capability to report configuration changes. A configuration change is generally defined as "the addition, deletion, modification, or relocation of any piece of *installed* equipment aboard a ship." From your viewpoint, the reason it is important for your command to report configuration changes is to ensure that you have the required parts support that you need to maintain and repair your equipment.

The usefulness of the MDS depends on the accuracy, thoroughness, and timeliness of the reported information. Programs for improving the reliability, maintainability, and logistic support of your equipment depend on how conscientiously you adhere to the reporting procedures.

This section briefly describes the major components of the MDS: MDS forms, the Current Ship's Maintenance Project reports, and the Planned Maintenance System.

MAINTENANCE DATA SYSTEM FORMS

As a Fire Controlman, you may use several MDS forms each day. The *Ships' Maintenance and Material Management (3-M) Manual*, OPNAVINST 4790.4, commonly referred to as the "3-M Manual," provides in-depth information on how to complete these forms. For information on completing the supply forms associated with the MDS, refer to the appropriate supply manuals.

Ship's Maintenance Action Form

The Ship's Maintenance Action Form (OPNAV 4790/2K), shown in figure 2-1, is the primary MDS form. A multiple-copy form having six sections, the 4790/2K is used to report both deferred and completed maintenance actions (including previously deferred actions), and is commonly referred to as a "two-kilo". Whenever you make an entry on this form, print the information in CAPITAL letters. Be sure your entries are legible and located within the tick marks. If you make an error, line it out with a single line and enter the correct information. Refer to your 3-M manual for specific guidance.

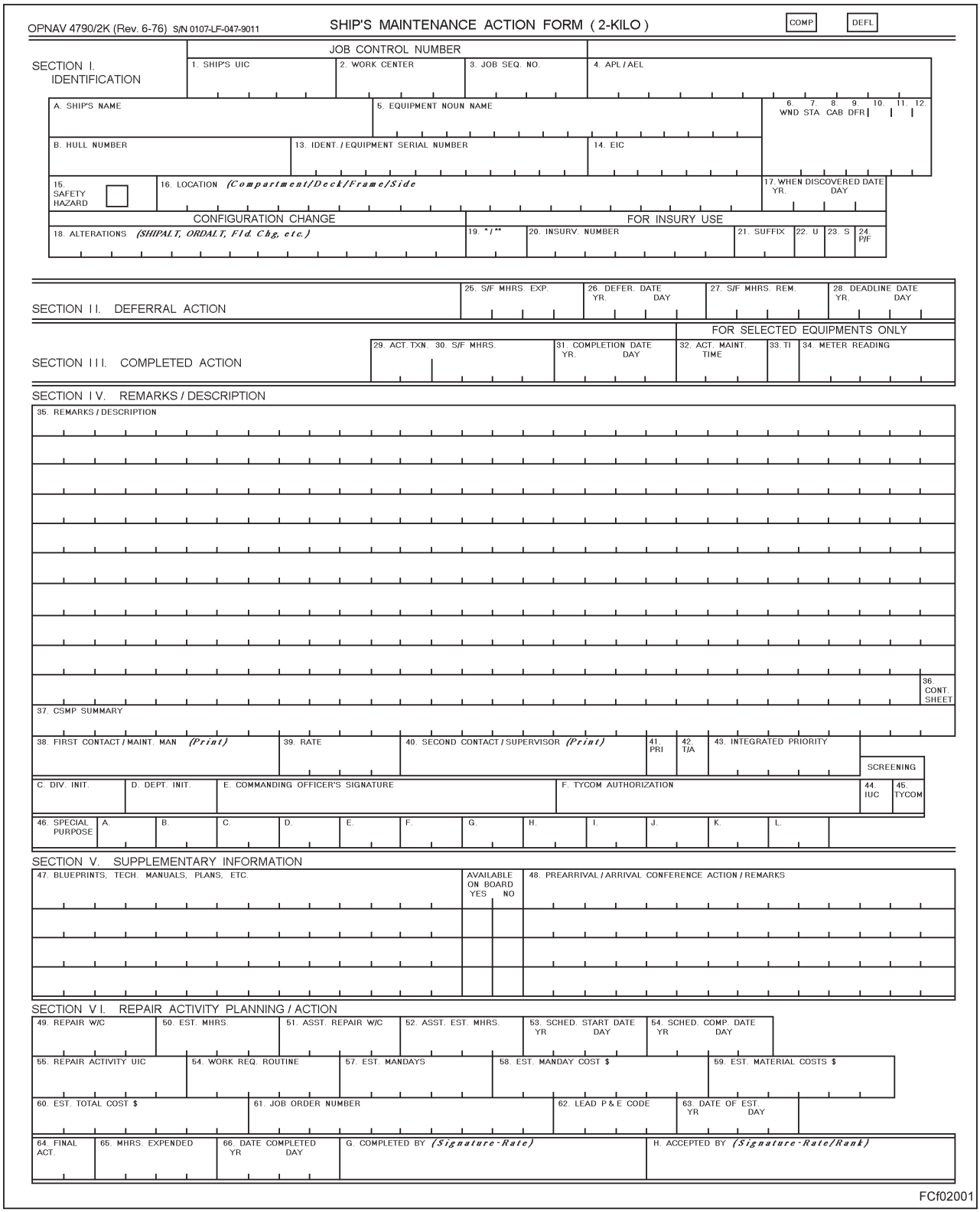
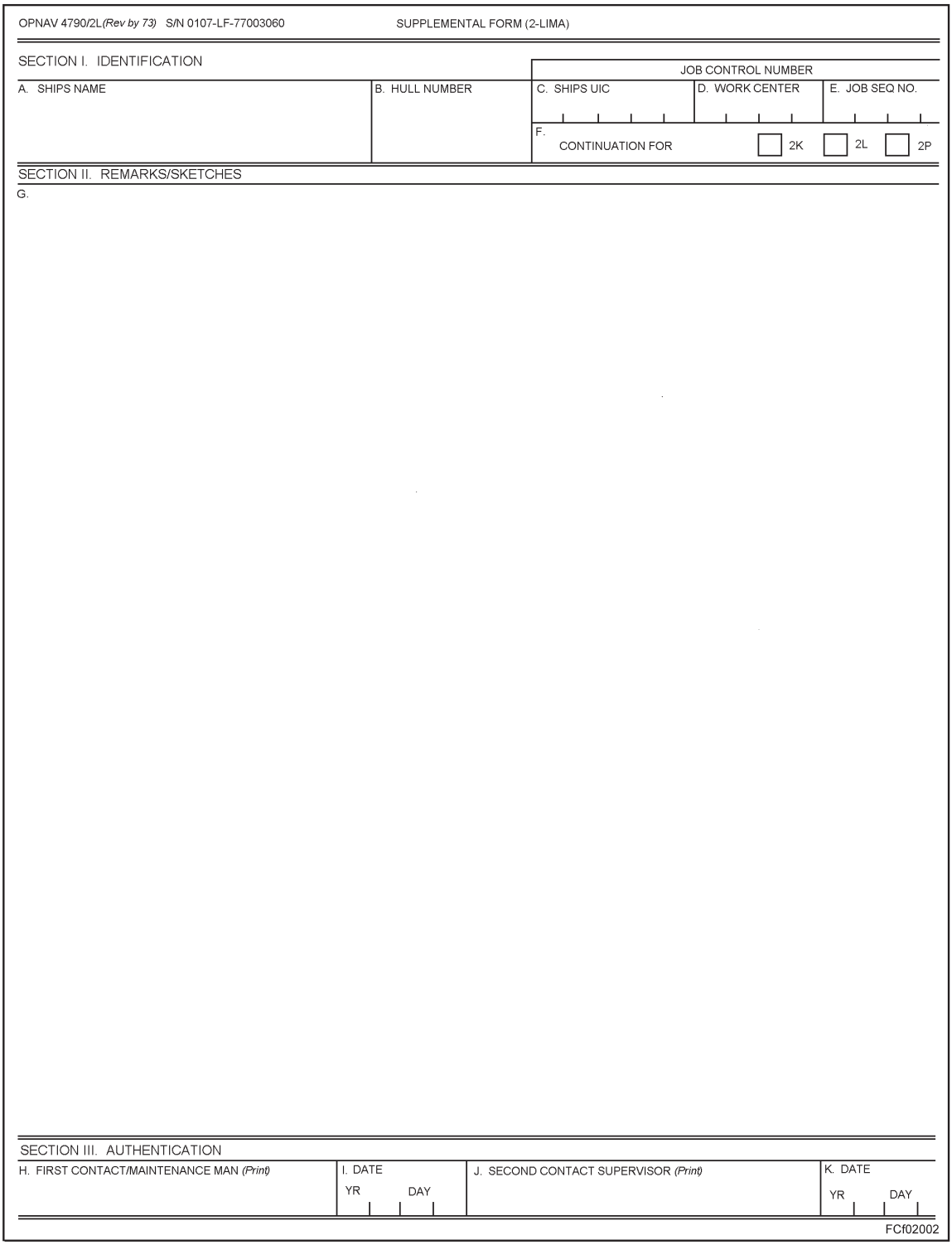


Figure 2-1.—Ship's Maintenance Action Form (OPNAV 4790/2K).

Supplemental Form

The Supplemental Form (OPNAV 4790/2L), shown in figure 2-2, is used to provide amplifying information from drawings, listings, associated parts placement, part labels, etc., for use by a repair activity. When you need to use an OPNAV 4790/2L with an OPNAV 4790/2K, enter the notation "2L USED" in block 35 of the OPNAV 4790/2K.


OPNAV 4790/2L*(Rev by 73)* S/N 0107-LF-77003060 SUPPLEMENTAL FORM (2-LIMA)

SECTION I. IDENTIFICATION

A. SHIPS NAME	B. HULL NUMBER	JOB CONTROL NUMBER C. SHIPS UIC	D. WORK CENTER	E. JOB SEQ NO.

F. CONTINUATION FOR ☐ 2K ☐ 2L ☐ 2P

SECTION II. REMARKS/SKETCHES

G.

SECTION III. AUTHENTICATION

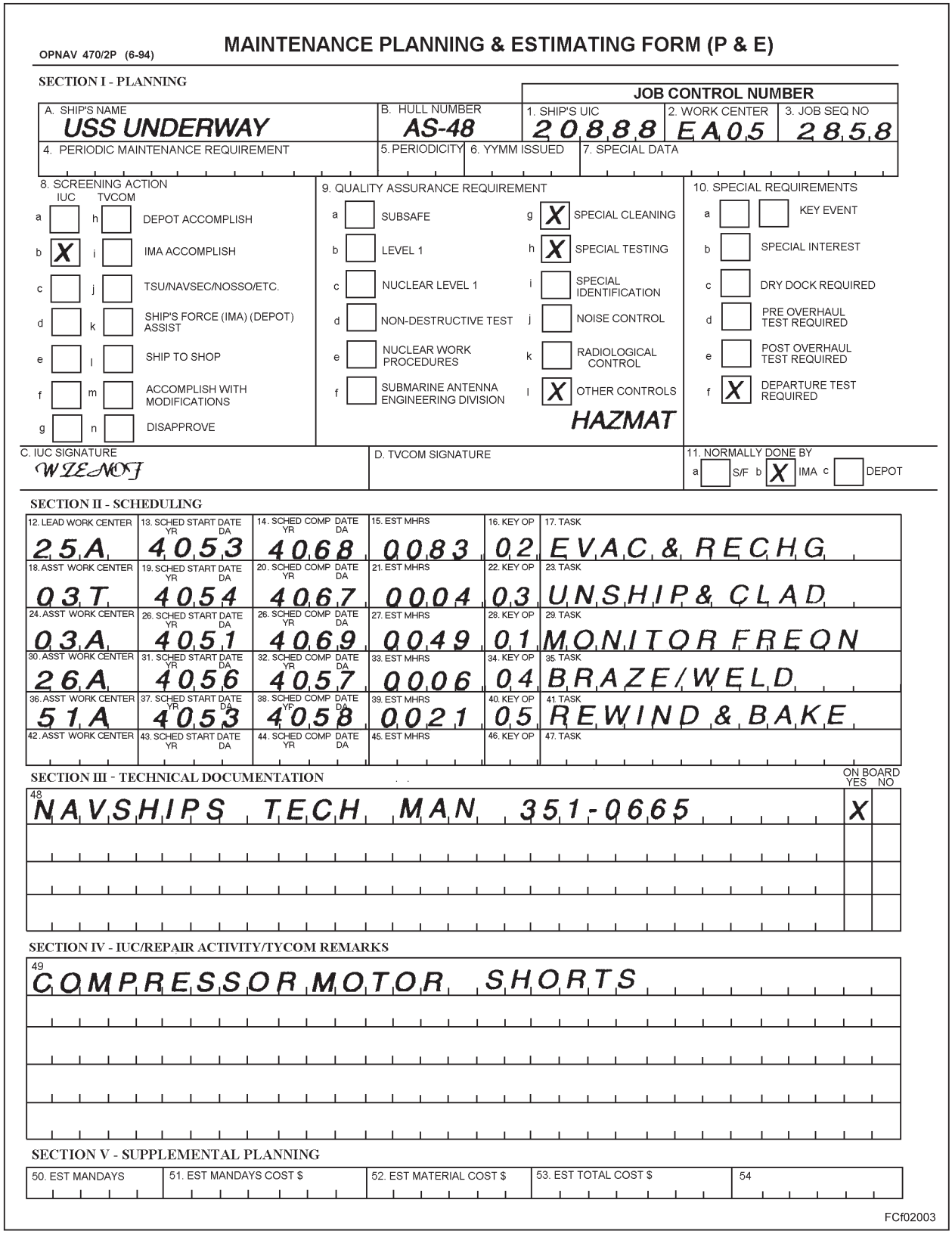
H. FIRST CONTACT/MAINTENANCE MAN *(Print)*	I. DATE YR DAY	J. SECOND CONTACT SUPERVISOR *(Print)*	K. DATE YR DAY

FCf02002

Figure 2-2.—Supplemental form (OPNAV 4790/2L).

Maintenance Planning & Estimating Form

The Maintenance Planning & Estimating Form (OPNAV 4790/2P) is used with an OPNAV 4790/2K that defers maintenance to be done by an intermediate maintenance activity (IMA) under the Intermediate Maintenance Management System (IMMS). When the form is completed, it provides information required for detailed screening and planning. Figure 2-3 shows this form as it may appear when a repair activity has completed planning and scheduling for the maintenance requirement.



OPNAV 470/2P (6-94)

MAINTENANCE PLANNING & ESTIMATING FORM (P & E)

SECTION I - PLANNING

JOB CONTROL NUMBER

A. SHIP'S NAME	B. HULL NUMBER	1. SHIP'S UIC	2. WORK CENTER	3. JOB SEQ NO
USS UNDERWAY	AS-48	20888	EA05	2858

4. PERIODIC MAINTENANCE REQUIREMENT	5. PERIODICITY	6. YYMM ISSUED	7. SPECIAL DATA

8. SCREENING ACTION

	IUC	TVCOM	
a		h	DEPOT ACCOMPLISH
b	X	i	IMA ACCOMPLISH
c		j	TSU/NAVSEC/NOSSO/ETC.
d		k	SHIP'S FORCE (IMA) (DEPOT) ASSIST
e		l	SHIP TO SHOP
f		m	ACCOMPLISH WITH MODIFICATIONS
g		n	DISAPPROVE

9. QUALITY ASSURANCE REQUIREMENT

a	SUBSAFE	g	X SPECIAL CLEANING
b	LEVEL 1	h	X SPECIAL TESTING
c	NUCLEAR LEVEL 1	i	SPECIAL IDENTIFICATION
d	NON-DESTRUCTIVE TEST	j	NOISE CONTROL
e	NUCLEAR WORK PROCEDURES	k	RADIOLOGICAL CONTROL
f	SUBMARINE ANTENNA ENGINEERING DIVISION	l	X OTHER CONTROLS

HAZMAT

10. SPECIAL REQUIREMENTS

a		KEY EVENT
b		SPECIAL INTEREST
c		DRY DOCK REQUIRED
d		PRE OVERHAUL TEST REQUIRED
e		POST OVERHAUL TEST REQUIRED
f	X	DEPARTURE TEST REQUIRED

C. IUC SIGNATURE	D. TVCOM SIGNATURE	11. NORMALLY DONE BY
WZENOSJ		a S/F b X IMA c DEPOT

SECTION II - SCHEDULING

12. LEAD WORK CENTER	13. SCHED START DATE YR DA	14. SCHED COMP DATE YR DA	15. EST MHRS	16. KEY OP	17. TASK
25A	4053	4068	0083	02	EVAC & RECHG
18. ASST WORK CENTER	19. SCHED START DATE YR DA	20. SCHED COMP DATE YR DA	21. EST MHRS	22. KEY OP	23. TASK
03T	4054	4067	0004	03	UNSHIP & CLAD
24. ASST WORK CENTER	26. SCHED START DATE YR DA	26. SCHED COMP DATE YR DA	27. EST MHRS	28. KEY OP	29. TASK
03A	4051	4069	0049	01	MONITOR FREON
30. ASST WORK CENTER	31. SCHED START DATE YR DA	32. SCHED COMP DATE YR DA	33. EST MHRS	34. KEY OP	35. TASK
26A	4056	4057	0006	04	BRAZE/WELD
36. ASST WORK CENTER	37. SCHED START DATE YR DA	38. SCHED COMP DATE YR DA	39. EST MHRS	40. KEY OP	41. TASK
51A	4053	4058	0021	05	REWIND & BAKE
42. ASST WORK CENTER	43. SCHED START DATE YR DA	44. SCHED COMP DATE YR DA	45. EST MHRS	46. KEY OP	47. TASK

SECTION III - TECHNICAL DOCUMENTATION

48	ON BOARD YES	NO
NAVSHIPS TECH MAN 351-0665	X	

SECTION IV - IUC/REPAIR ACTIVITY/TYCOM REMARKS

49
COMPRESSOR MOTOR SHORTS

SECTION V - SUPPLEMENTAL PLANNING

50. EST MANDAYS	51. EST MANDAYS COST $	52. EST MATERIAL COST $	53. EST TOTAL COST $	54

FCf02003

Figure 2-3.—Maintenance Planning & Estimating Form (OPNAV 4790/2P).

Ship's Configuration Change Form

The Ship's Configuration Change Form (OPNAV 4790/CK), shown in figure 2-4, is used to report configuration changes at the individual equipment level. (The associated maintenance action on an OPNAV 4790/CK does not need to be documented on an OPNAV 4790/2K.) This form is used to report the completion of (1) a previously deferred maintenance action that results in a configuration change, and (2) a maintenance action (with no prior deferral) that results in a configuration change.

SHIP'S CONFIGURATION CHANGE FORM OPNAV 4790/CK (5-84)
(REV 5-84) S/N 0107 LF 047-9010

CONFIG FILE CORR | COMP M/A NO DEFL | COMP DEFL

SECTION I - JOB IDENTIFICATION

JOB CONTROL NUMBER: 1. SHIP'S UIC | 2. WORK CENTER | 3. JOB SEQ. NR
ALTERATION IDENTIFICATION: 4. ALTERATIONS (SHIP ALT, FLD., CHG., ETC.)

A. SHIP'S NAME | B. HULL NUMBER | 5. EIC | 6. ACT Trn

7. EQUIPMENT NOUN NAME | 8. S/F MHRS. EXP | 9. ACT MAINT TIME | 10. COMP DATE

SECTION II - JOB DESCRIPTION/REMARKS

12. JOB DESCRIPTION /REMARKS

SECTION III - COMPONENT CONFIGURATION CHANGE IDENTIFICATION

11. COMPONENT NOUN NAME | 14. QUANTITY | 15. CA
16. COMPONENT IDENTIFICATION | 12. COMPONENT SERIAL NUMBER
18. COMPONENT APL/AEL | 19. LOCATION (DECK FRAME/SIDE) | 20. EIC
21. NEXT HIGHER ASSEMBLY | 22. SAC | 23. WORK CENTER
24. NAME PLATE DATA
25. MIF | 26. EOSS
27. TM

SECTION IV - SPECIAL PURPOSE

28. RIN | 29. AILSIN | 30. SECAS OFFICE USE

- INSTRUCTIONS -

ITEM NUMBER	SECTION I & II DESCRIPTION	SECTION I & II PAGE 1	SECTION I & II CONT PAGE
1 - 3	JOB CONTROL NUMBER	M	M
4	ALTERATION IDENTIFICATION	IP	IP
5	EQUIPMENT IDENTIFICATION CODE	M	NR
6	ACTION TAKEN	M	NR
7	EQUIPMENT NOUN NAME	M	NR
8	SHIP'S FORCE MANHOURS EXPENDED	M	NR
9	ACTIVE MAINTENANCE TIME	M	NR
10	COMPLETION DATE	M	NR
11	METER READING	IP	NR
12	JOB DESCRIPTION (REMARKS)	O	NR

ITEM NUMBER	SECTION III DESCRIPTION	REMOVE (R/D)	INSTALL (I/A)	MODIFY (M/C)
13	COMPONENT NOUN NAME	M	M	M
14	QUANTITY	M	M	M
15	COMPONENT ACTION	M	M	M
16	COMPONENT IDENTIFICATION	IP	IP	IP
17	COMPONENT SERIAL NUMBER	IA	IA	IA
18	COMPONENT APL/AEL	M	IA	IA
19	LOCATION	M	M	M
20	EQUIPMENT IDENTIFICATION CODE	NR	IA	NR
21	NEXT HIGHER ASSEMBLY	IP	IP	IP
22	SERVICE APPLICATION CODE	IA	IA	IA
23	WORK CENTER	NR	M	NR
24	NAME PLATE DATA	NR	M	NR
25	MAINTENANCE INDEX PAGE	IA	IA	IA
26	EOSS	IP	IP	IP
27	TECH MANUAL NUMBER	IA	IA	IA

LEGEND

IA - IF AVAILABLE
IP - IF APPLICABLE
M - MANDATORY
O - OPTIONAL
NR - NOT REQUIRED

SECTION I BLOCK 6 ACTION TAKEN

5A - PARTIALLY COMPLETED ALTERATION
5B - FULLY COMPLETED ALTERATION
5C - FULLY COMPLETED EQUIVALENT TO ALTERATIONS
5D - ALTERATION DIRECTIVE NOT APPLICABLE
1 - MAINTENANCE ACTION COMPLETED PARTS DRAWN FOR SUPPLY
2 - MAINTENANCE ACTION COMPLETED. REQUIRED PARTS NOT DRAWN FROM SUPPLY (LOCAL MANUFACTURE PRE-EXPENDED BINS)
3 - MAINTENANCE ACTION COMPLETED. NO PARTS REQUIRED

SECTION I BLOCK 15 COMPONENT ACTION

MAINTENANCE ACTIONS
R - REMOVED EQUIPMENT
I - INSTALLED EQUIPMENT
M - MODIFIED EQUIPMENT

CONFIG FILE CORR NO MAINTENANCE ACTION
A - ADDITION OF RECORD
D - DELETION OF RECORD
C - CORRECT/CHANGE EXISTING RECORD

WORK CENTER SUPERVISOR | DIVISION OFF | SUPPLY DEPT | 3M COORDINATOR | SHIP SEQUENCE NUMBER | PAGE _____ OF _____

FCf02004

Figure 2-4.—Ship's Configuration Change Form (OPNAV 4790/CK).

Ship's Configuration Change Form Continuation Page

The Ship's Configuration Change Form Continuation Page (OPNAV 4790/CK(C)), shown in figure 2-5, is simply a continuation page for the OPNAV 4790/CK. The *COSAL Use and Maintenance Manual*, SPCCINST 4441.170, in addition to OPNAVINST 4790.4, provides block-by-block instructions for completing these forms.

CURRENT SHIP'S MAINTENANCE PROJECT SYSTEM

The Current Ship's Maintenance Project (CSMP) System provides the command and the work center

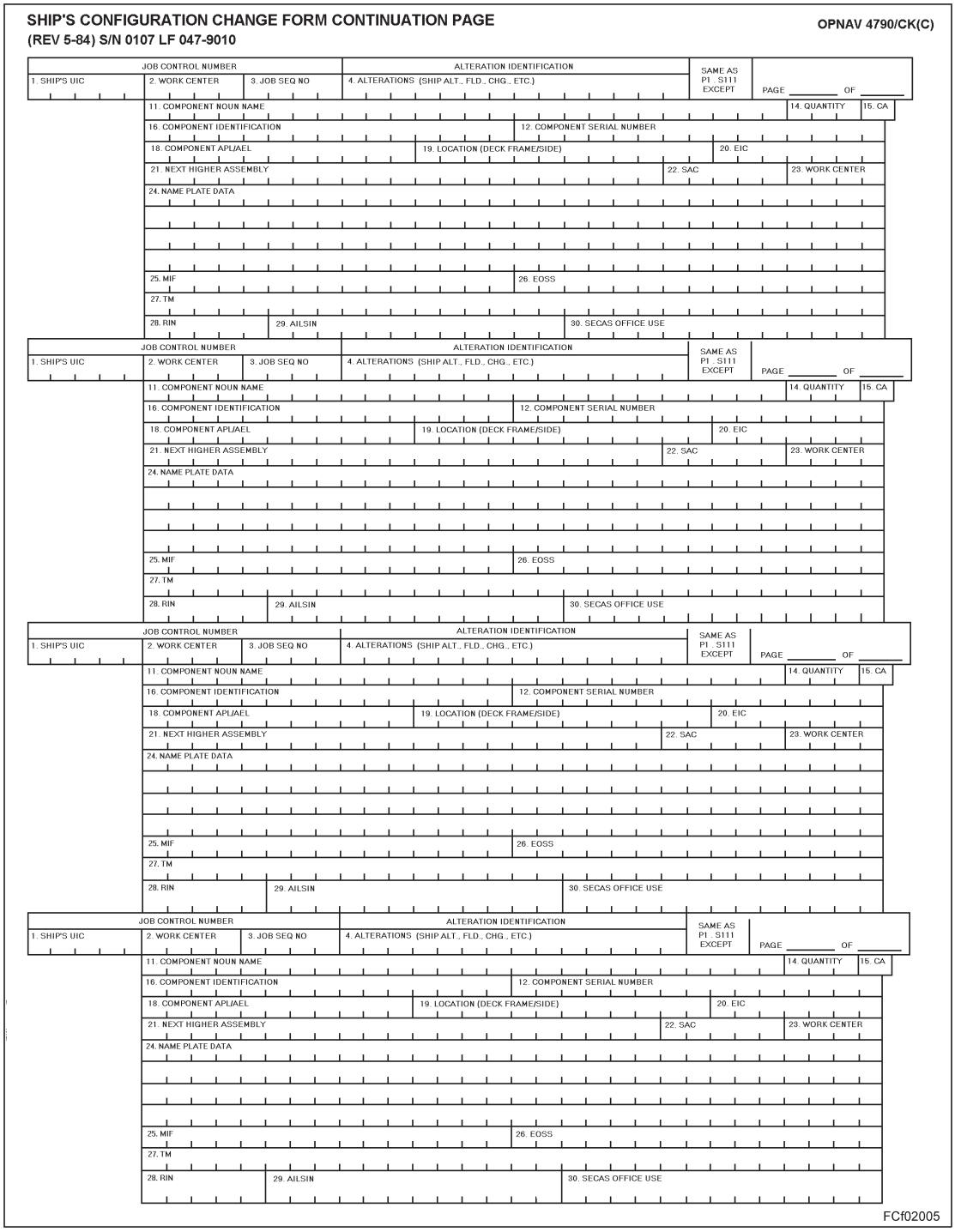


Figure 2-5.—Ship's Configuration Change form Continuation page (OPNAV 4790/CK(C).

with the administrative management data they need to systematically repair or alter the ship's hull, installed equipment, or material. It identifies the backlog of deferred maintenance for each work center on computer printouts generated by the ship's MDS. Your ship's 3-M Coordinator will deliver a CSMP report to each work center on a regular basis. You, or someone in your work center, will be required to verify that your work center's CSMP is accurate and to update it if it isn't.

The MDS provides the means for gathering the information used in the CSMP. The success or failure of the CSMP system depends entirely on how accurate the information is and how supervisors and technicians use that information.

PLANNED MAINTENANCE SYSTEM

The Planned Maintenance System (PMS) provides each command with a simple, standard means for planning, scheduling, controlling, and performing planned equipment maintenance. PMS actions are the minimum actions necessary to maintain equipment in a fully operational condition.

In the following paragraphs, we describe the primary forms used in the PMS. These forms are available through the Naval Supply System.

Maintenance Requirement Card

Maintenance procedures are contained on a Maintenance Requirement Card (OPNAV 4790), shown in figure 2-6. Every preventive maintenance action has an associated MRC that describes, in detail, "who (rate)" should do "what," "when," "how," and "with what resources" for the maintenance requirement.

Equipment Guide List

A maintenance requirement card may have an associated Equipment Guide List (OPNAV 4790/81), shown in figure 2-7, that identifies the location of all identical equipment covered by the MRC. Guide lists are filled out by technicians, since they know where their equipment is located. The Maintenance Requirement Card may also have an associated Tag Guide List (OPNAV 4790/107) that describes what equipment must be tagged out while the maintenance is being performed (see your 3-M manual for a sample).

Maintenance Index Page

A Maintenance Index Page (OPNAV 4790/85) contains a brief description of the maintenance requirements on all the maintenance requirement cards for each item of equipment. Included are the periodicity codes, the man-hours involved, the minimum required skill level, and, if applicable, the related maintenance requirements.

List of Effective Pages

The List of Effective Pages (Report No. PMS 5) provides a listing of all Maintenance Index Pages assigned to your work center. It includes a report date, a force revision number, your type commander (TYCOM), ship's hull number and unit identification code, your work center, maintenance index page numbers, and a brief description of equipment for each maintenance index page listed.

Weekly PMS Schedule

A Weekly PMS Schedule (OPNAV 4790/15) is a visual display posted in each work center's working area that shows who has been assigned to perform required maintenance on specific components or equipment.

Quarterly PMS Schedule

A Quarterly PMS Schedule (OPNAV 4790/14) is a visual display that shows a quarter's worth of specific maintenance requirements, divided into weeks.

Planned Maintenance System Feedback Report

The Planned Maintenance System Feedback Report (OPNAV 4790/7B), shown in figure 2-8, provides the command with an easy method for recommending changes to maintenance requirement cards, ordering replacements for cards that have been lost or mutilated, and notifying the system's command of any discrepancies in coverage.

This form has an original and four copies. Instructions for preparing and submitting it are printed on the back of the form. See figure 2-9.

SHIP SYSTEM	SUBSYSTEM	MRC CODE
Miscellaneous Shipboard Electrical Equip and Installed Receptacles 3000	Miscellaneous Shipboard Electrical Equip and Installed Receptacles 3000	3000 M-4/ Q-2R

SYSTEM	EQUIPMENT	RATES	M/H
Miscellaneous Shipboard Electrical Equip and Installed Receptacles 3000	Miscellaneous Shipboard Electrical Equip and Installed Receptacles 300XY	EM2 EMFN	0.1 0.1

TOTAL M/H
0.2
ELAPSED TIME
0.1

MAINTENANCE REQUIREMENT DESCRIPTION

1. Inspect portable electrical tool/device equipped with two-prong plug.
2. Measure insulation resistance.

SAFETY PRECAUTIONS

1. Forces afloat comply with Navy Safety Precautions for Forces Afloat, OPNAVINST 5100 series
2. Ensure all tag-out procedures are in accordance with current shipboard instruction.
3. Tool test set (SCAT 4547) can produce voltages dangerous to life. Wear rubber gloves.

TOOLS, PARTS, MATERIALS, TEST EQUIPMENT

TEST EQUIPMENT

1. (0399) Electrical tool testers, SCAT-4547, 07239-235000
2. (0883) Megger, 500V, 100MOhm, SCAT-4452
3. (0901) Multimeter, AC/DC, SCAT-4245

MISCELLANEOUS

1. (0526) Gloves, electrical workers, 7500 volt maximum safeuse, size 9, rubber

MATERIALS

1. (0098) Pen, ball-point
2. (1144) Tag, safety
3. (1857) Tag, safety check
4. (2277) Pad, writing paper

NOTE: Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for stock number identification.

PAGE 1 OF 3

PROCEDURE

NOTE 1: For equipment issued on permanent or semi-permanent loan to work centers, accomplish monthly, all others accomplish quarterly or before each issue. For repair locker equipment, accomplish quarterly or after each use, whichever occurs first.

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DISTRIBUTION STATEMENT D
Distribution authorized to DOD components and DOD contractors only; critical technology; February 1994. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04TD). Destroy any method that will prevent disclosure of contents or reconstruction of the document.

4ABG

LOCATION	DATE	
Equipment Guide List Recommended	February 1994	N

MAINTENANCE REQUIREMENT CARD (MRC)
OPNAV 4790 (REV. 2-82)

FCf02006

Figure 2-6.—Maintenance Requirement Card (OPNAV 4790).

EQUIPMENT GUIDE LIST
OPNAV 4790/81 (2-76)
S/N 0107- LF- 047- 9405

PAGE OF

MIP NO. *(Less last 2 characters)* _____ MRC PERIODCITY _____

EQUIPMENT NAME NOMENCLATURE	SERIAL NO. QUANTITY	LOCATION	APPLICABLE DATA AS REQUIRED BY MRC
			FCf02007

Figure 2-7.—Equipment Guide List (OPNAV 4790/81).

SHIP'S NON-TACTICAL AUTOMATED DATA PROCESSING PROGRAM (SNAP)

The Ship's Non-tactical Automated Data Processing Program (SNAP) system is used to process and track maintenance actions for your ship. SNAP is a computer-based system that includes the previously mentioned MDS forms in its data banks. Instead of filling out a hard copy form, you can access the SNAP computer and do the same thing on a computer screen. Consult your chain of command to find out what version of computer software your ship uses and what training is available to you.

Q1. What is a configuration change?

Q2. What manual discusses the MDS in detail?

Q3. What is the primary MDS form?

Q4. What basic information is contained in a maintenance requirement card?

THE TECHNICAL LIBRARY

To do your job properly, you must know how to use technical manuals effectively and efficiently. In addition to the technical manuals for your equipment, dozens of other technical manuals are available to help you do your job. Many of these technical manuals are now produced on compact discs (CDs) as well as in hard copy (printed) format. Some of these manuals are even accessible on the Internet. Check with your supply department and chain of command to see what format is available for your ship.

This section briefly describes some of the various manuals and publications that you should expect to find in your ship's technical library.

PUBLICATION APPLICABILITY LISTING

The *Publication Applicability Listing* (PAL) (a publication that is unique to each ship) lists technical manuals, operating instruction charts, performance standards sheets, maintenance standards books, and technical manual changes for operating and maintaining onboard systems and equipment under the technical cognizance of the Commander, Naval Sea Systems Command (COMNAVSEASYSCOM).

The PAL is produced from the Ships' Technical Publications System, NAVSEASYSCOM's technical manual information system, and is maintained by the Naval Ship's Data Support System (NSDSS), Port Hueneme, California. Although the PAL provides assistance in determining the publication needs of a ship or shore station, it does not specify required publications.

REPORT SYMBOL OPNAV 4790-4

SEE INSTRUCTIONS ON BACK OF GREEN PAGE

FROM (SHIP NAME AND HULL NUMBER)	SERIAL #
USS NEVERWAS FFG 999	1074 - 94
	DATE 09 MAR 94

TO

[X] NAVAL SEA SUPPORT CENTER PACIFIC (Category A)

[ ] TYPE COMMANDER (Category B)

SUBJECT: PLANNED MAINTENANCE SYSTEM FEEDBACK REPORT

SYSTEM, SUB-SYSTEM, OR COMPONENT	APL/CID/AN NO./MK. MOD
SONAR RECEIVING SET	AN/SQR - 18A (V)1
SYSCOM MIP CONTROL NUMBER	**SYSCOM MRC CONTROL NUMBER**
4621/23 - 23	VARIOUS

DESCRIPTION OF PROBLEM

CATEGORY A	CATEGORY B
[X] MIP/ MRC REPLACEMENT	[ ] TECHNICAL [ ] TYCOM ASSISTANCE [ ] OTHER (Specify)

REMARKS

REQUEST TWO COPIES EACH OF FOLLOWING CLASSIFIED MRCs:

72 EZV9 N

12 EZV0 N

20 EZW5 N

TOTAL OF 6 MRCs REQUESTED. ADEQUATE SECURE STORAGE PER OPNAVINST 5110.1H IS AVAILABLE.

ORIGINATOR & WORK CENTER CODE	DIV. OFFICER
ET (SW) Frost EE01	LT A. B. Smith
DEPT. HEAD	**3-M COORDINATOR**
I. M. Daboss, CDR, USN	GMC (SW) J. R. DOE

Originator do not write below. For TYCOM use only.

TYCOM [ ] CONCUR [ ] DO NOT CONCUR [ ] TAKES ACTION PASSES FOR ACTION

TYCOM REP SIGNATURE	DATE

OPNAV 4790/7B (Rev. 9-89)
S/N 0107- LF- 007- 8000

ACTION COPY

PAGE 1 OF 1

EDITION OF 3-84 MAY BE USED UNTIL EXHAUSTED

FCf02008

Figure 2-8.—Planned Maintenance System Feedback Report (OPNAV 4790/7B).

1. ORIGINATOR

   a. Typewritten copies are preferred, however, handprinted copies are acceptable. Use ballpoint pen and ensure all copies are legible.

   b. EQUIPMENT IDENTIFICATION: Fill in titled blocks that apply. Gives as much information that can be determined. Ensure that correct APL number is used for hull, mechanical or electrical equipment or electronic/weapons equipment which does not have an Army-Navy number or mark/mod designation.

   c. DESCRIPTION OF PROBLEM: Check the appropriate box.

      Category A

      (1) MIP/MRC REPLACEMENT: Ensure that PMS documentation request is current in accordance with latest SFR. For missing MIPs/MRCs, give SYSCOM control numbers when they can be determined. If SYSCOM control numbers cannot be determined, provide as much nameplate data as can be obtained. When ordering a variety of missing/worn MIPs/MRCs, the subject section shall be left blank.

      Category B

      (2) TECHNICAL:

         (a) Identify specific discrepancy discovered in PMS by MRC control number, step number, etc.

         (b) For publication discrepancies identify publication by number, volume, revision date/number, change number, page, paragraph and/or figure as appropriate.

            THIS FORM WILL NOT BE USED TO ORDER PUBLICATIONS.

      (3) TYCOM ASSISTANCE: Includes clarification of 3-M instructions and other matters related to PMS administration.

      (4) OTHER: Identify in detail any problem not covered by (1) through (3) above. Shifts of maintenance responsibility will be reported under this item. Ensure that all work centers involved in the change are identified by work center code. Approval by the Executive Officer will be shown in the "Remarks".

   d. REMARKS: Provide brief, but complete, description of problem or requirements. Executive Officer indicate approval of maintenance responsibility shift by endorsement. Use additional forms if more space is required. Mark addition forms, "page 2 of 2", "page 2 of 3", etc. Staple additional forms behind basic form.

   e. ORIGINATOR IDENTIFICATION: Sign and insert work center code in appropriate space.

2. DIVISION OFFICER: Review for accuracy and completeness and sign in the space provided.

3. DEPARTMENT HEAD: Review for accuracy and completeness and sign in the space provided.

4. 3-M COORDINATOR:

   a. Serialize, date and sign in the appropriate space.

   b. ROUTING INSTRUCTIONS: For Category "A" FBRs, forward the white and yellow copies to the appropriate NAVSEACEN and the pink copy to the TYCOM. For Category "B" FBRs, forward the white, yellow and pink copies to the TYCOM. Retain blue copy in suspense file. Return green copy to the originator.

Figure 2-9.—Instructions for completing OPNAV 4790/7B.

The PAL consists of four separately bound volumes, each having two parts. Volume 1 lists only general and ship-applicable publications that do not relate to equipment or systems. It does not include any of the publications that appear in volumes 2, 3, and 4.

- Volume 1—*General Publications*

  Part 1—Electronics, Hull, Maintenance & Electrical (HM&E), and Miscellaneous

  Part 2—Weapons

- Volume 2—*Electronics*

  Part 1—Equipment sequence

  Part 2—Publication sequence

- Volume 3—*HM&E*

  Part 1—Equipment sequence

  Part 2—Publication sequence

- Volume 4—*Weapons*

  Part 1—Equipment sequence

  Part 2—Publication sequence

NAVAL SHIPS' TECHNICAL MANUAL

The *Naval Ships' Technical Manual* (NSTM) is a set of books (called chapters) that contain general information on a variety of topics. You can find a complete listing of the NSTM chapters in chapter 001, *General NSTM Publications Index and User Guide*, NAVSEA S9086-AA-STM-010.

The chapters listed in the following paragraphs are related to your job as a Fire Controlman, both as a technician and as a member of a ship or station organization.

- **NSTM Chapter 079—*Damage Control-Practical Damage Control*, NAVSEA S9086-CN- STM-020**. Provides broad guidance for establishing a damage control organization. It is designed to help organizations plan before damage occurs, spend a minimal amount of time localizing damage that does occur, and make emergency repairs or restoration as quickly as possible after damage occurs.
- **NSTM Chapter 300—*Electric Plan-General*, NAVSEA S9086-KC-STM-010**. Provides information and instructions on electrical equipment, electrical safety precautions, electrical insulation and insulation resistance, and maintenance reconditioning of electrical equipment. It also provides the requirements that Fire Controlmen must meet in a shipboard safety program, including the use and maintenance of both organizational and personal electrical and electronic equipment.
- **NSTM Chapter 400—*Electronics*, NAVSEA S9086-ND-STM-000**. Provides major policies and instructions pertaining to the maintenance of electronic equipment and safety information on board both active and reserve ships.
- **NSTM Chapter 631—*Preservation of Ships in Service-Surface Preparation and Painting*, NAVSEA S9086-VD-STM-020**. Provides instructions, requirements, and information for the prevention of corrosion of ships, boats, and small craft. Its topics include surface preparation, painting, and application of other preventive measures.
- **NSTM Chapter 634—*Deck Coverings*, NAVSEA S9086-VG-STM-010**. Provides information concerning materials, installation procedures, maintenance and repair of deck coverings, gratings, sealing methods, and caulking compounds used for sealing deck seams.

ELECTRONICS INSTALLATION AND MAINTENANCE BOOK

The *Electronics Installation and Maintenance Book* (EIMB) contains, in one convenient source, safety information, maintenance policies and philosophies, installation standards and practices, and overall electronic equipment and materials-handling procedures required by Chapter 400 of the *Naval Ships' Technical Manual*.

The EIMB, a 13-volume series of individual books, is an excellent source of basic information that can be used as a training tool for your work center. If space is available, you will benefit from having a complete set for your technical library. These books are periodically updated by incorporating the Engineering Information Bulletin (EIB) articles. EIMB/EIB's are also available on compact disc. Check with your supply department for details on ordering the latest compact disc version.

COMBAT SYSTEM OPERATIONAL SEQUENCING SYSTEM (CSOSS)

The Combat System Operational Sequencing System (CSOSS) is a collection of manuals specifically designed for each class of ship. The manuals include step-by-step procedures and supporting material for combat system personnel to use in supporting the operation and maintenance of combat system equipment. Combat system readiness fundamentals are provided in the Combat System Technical Operations Manual (CSTOM). The CSOSS and CSTOM manuals cover a wide spectrum of readiness fundamentals for each class of ship. Joint instruction COMNAVSURFLANTINST 4790.20/ COMNAVSURFPACINST 4790.9 (series) provides directions to commanding officers for use of CSOSS. CSOSS is a readiness tool that provides the means to manage combat systems readiness around-the-clock, at-sea and in-port, in peacetime and in wartime.

Consult your specific CSOSS User's Guide for detailed instructions and explanations concerning the requirements of your ship class and related equipment. Your ship's Combat Systems Officer of the Watch (CSOOW) and chain-of-command will help you find specific information about these manuals and CSOSS instructions.

OTHER PUBLICATIONS

Many other useful publications are available throughout the fleet. However, because of their vast number, we can describe only a few of them. You can identify many of these additional publications by checking the bibliographies of your primary publications.

Electromagnetic Radiation Hazards

Electromagnetic Radiation Hazards, NAVSEA OP 3565, is a two-volume manual that prescribes operating procedures and precautions to prevent injury to personnel, ignition of volatile vapors, and premature initiation of electroexplosive devices in ordnance in electromagnetic environments.

Volume I is *Hazards to Personnel, Fuel, and Other Flammable Material*. Volume II is divided into two parts: Part I-*Hazards to Unclassified Ordnance Systems,* and Part II-*Hazards to Classified Ordnance Systems*. Volume I and Volume II, Part I are unclassified. All classified data is contained in Volume II, Part II.

Procedures for Conducting a Shipboard Electromagnetic Interference Survey (Surface Ships)

The *Procedures for Conducting a Shipboard Electromagnetic Interference (EMI) Survey (Surface Ships),* MILSTD 1605 (SHIPS), provides detailed procedures for conducting an electromagnetic interference survey aboard surface ships.

Navy Electricity and Electronics Training Series

The *Navy Electricity and Electronics Training Series* (NEETS) is a multi-modular set of manuals that contain a vast amount of information. The current modules are shown in table 2-1. The NEETS modules are high-quality training aids and are excellent review publications on basic electronics for all Fire Controlmen. ALL Fire Controlmen should be thoroughly familiar with the NEETS modules.

Equipment Identification Code Master Index

The *Equipment Identification Code Master Index*, NAMSO 4790.E2579, provides a listing of equipment identification codes (EICs) in two sections. Section I lists EIC numbers in numerical sequence and identifies the equipment nomenclature assigned to each EIC number. Section II lists nomenclature in alphanumerical sequence and identifies the EIC numbers assigned to the equipment.

Guide for User Maintenance of NAVSEA Technical Manuals

The *Guide for User Maintenance of NAVSEA Technical Manuals*, NAVSEA S0005-AA-GYD- 030, is an important part of the technical library, because keeping the technical manuals aboard your ship up to date is essential to the operational readiness of your command's systems and equipment.

Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies, and Equipment

The *Electrostatic Discharge Control Handbook for Protection of Electrical and Electronic Parts, Assemblies, and Equipment (Excluding Electrically Initiated Explosive Devices) (Metric),* MIL-HDBK 263, provides guidance, not requirements, for establishing and implementing an electrostatic

Table 2-1.—NEETS Modules

MODULE	TITLE OF MODULE	NAVEDTRA NUMBER
1	*Introduction to Matter, Energy, and Direct Current*	B72-01-00-92
2	*Introduction to Alternating Current and Transformers*	172-02-00-91
3	*Introduction to Circuit Protection, Control, and Measurement*	B72-03-00-93
4	*Introduction to Electrical Conductors, Wiring Techniques, and Schematic Reading*	B72-04-00-92
5	*Introduction to Generators and Motors*	B72-05-00-94
6	*Introduction to Electronic Emission, Tubes, and Power Supplies*	B72-06-00-92
7	*Introduction to Solid-State Devices and Power Supplies*	B72-07-00-92
8	*Introduction to Amplifiers*	172-08-00-82
9	*Introduction to Wave-Generation and Wave-Shaping Circuits*	172-09-00-83
10	*Introduction to Wave Propagation, Transmission Lines, and Antennas*	B72-10-00-93
11	*Microwave Principles*	172-11-00-87
12	*Modulation Principles*	172-12-00-83
13	*Introduction to Number Systems and Logic Circuits*	B72-13-00-94
14	*Introduction to Microelectronics*	172-14-00-84
15	*Principles of Synchros, Servos, and Gyros*	B72-15-00-93
16	*Introduction to Test Equipment*	B72-16-00-95
17	*Radio-Frequency Communications Principles*	172-17-00-84
18	*Radar Principles*	172-18-00-84
19	*The Technician's Handbook*	B72-19-00-92
20	*Master Glossary and Index*	172-20-00-85
21	*Test Methods and practices*	B72-21-00-87
22	*Introduction to Digital Computers*	B72-22-00-88
23	*Magnetic Recording*	B72-23-00-91
24	*Introduction to Fiber Optics*	B72-24-00-92

discharge (ESD) control program. This follows the requirements of *Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies, and Equipment (Excluding Electrically Initiated Explosive Devices (Metric),* MIL-STD-1686. While this publication does not provide information on protecting electrically initiated explosive devices, it does apply to protecting electrical and electronic parts, assemblies, and equipment from damage due to ESD.

Q5. What is the Publication Applicability Listing (PAL)?

Q6. What joint instruction gives guidance for use of the CSOSS?

Q7. Which section of the Equipment Identification Code Master Index, NAMSO 4790.E2579, lists EIC numbers in numerical sequence and identifies the equipment nonmenclature assigned to each EIC number?

SUMMARY

The Maintenance Data System (MDS) and its many components are an extremely important tool in tracking your equipment's performance. The accurate and timely reporting of deferred maintenance or configuration changes will result in better parts support and equipment readiness. The Planned Maintenance System (PMS) works with the MDS to ensure that your equipment is fully operational. The MDS forms are processed and maintenance actions tracked through the Ship's Non-tactical Automated Data Processing program (SNAP). This computer-based system enables ship's personnel to order parts or fill out MDS forms on a computer screen. Check with your command to find out what version you are using and where you can get training for SNAP.

Your ship's technical library is an important resource for you as an FC. Many technical publications are no longer distributed in a printed format but are distributed on compact disks. Check with your supply department and chain of command to find out how to order these publications, whether in a paper or compact disk format.

One of the more important resources to become familiar with as an FC is the Combat System Operational Sequencing System (CSOSS). Each class of ship has its own collection of manuals specifically configured to the CSOSS. You need to become familiar with your command's CSOSS publications and the training offered for your CSOSS program.

The *Navy Electricity and Electronics Training Series (NEETS)* is still an excellent resource for reviewing your basic electronics. It is being updated to a compact disk format and is also available on an Internet web site. There are many other good technical resources for FC's that are not mentioned here. Make it a habit to look for other resources that can help you perform your job better.

ANSWERS TO CHAPTER QUESTIONS

A1. An addition, deletion, modification, or relocation of any piece of ***installed*** *equipment aboard a ship."*

A2. The 3-M manual (OPNAVINST 4790.4 series).

A3. The Ship's Maintenance Action Form (OPNAV 4790/2K).

A4. "Who (rate)" should do "what," "when," "how," and "with what resources" for the maintenance requirement.

A5. A publication, unique to each ship, that lists technical manuals, operating instruction charts, performance standards sheets, maintenance standards books, and technical manual changes for operating and maintaining onboard systems and equipment under the technical cognizance of the Commander, Naval Sea Systems Command (COMNAVSEASYSCOM).

A6. COMNAVSURFLAMTINST 4790.20/ COMNAVSURFPACINST 4790.9.

A7. Section I.